

Name: _____

Date: _____

Exam: Function Reflections (EXAM version 602)

1. (worth 9 points) Let function f be defined by the polynomial below:

$$f(x) = 9x^4 + 3x^3 + 6x^2 + 4x - 5$$

Draw lines that match each function reflection with its polynomial:

Reflections

Polynomials

$-f(x)$ •

• $9x^4 - 3x^3 + 6x^2 - 4x - 5$

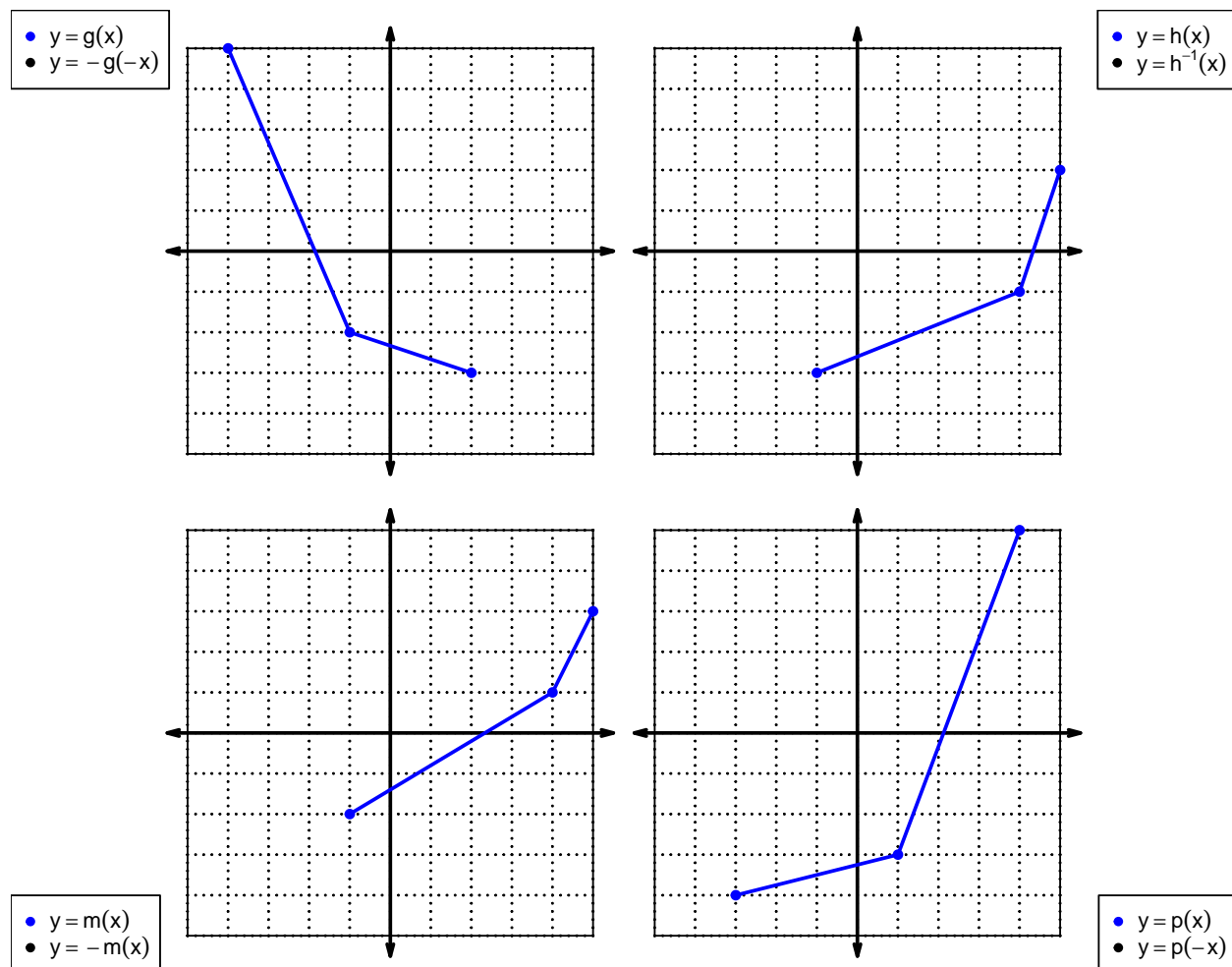
$f(-x)$ •

• $-9x^4 - 3x^3 - 6x^2 - 4x + 5$

$-f(-x)$ •

• $-9x^4 + 3x^3 - 6x^2 + 4x + 5$

2. (worth 20 points) In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.



Exam: Function Reflections (EXAM version 602)

For all questions on this page, the functions f , g , and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	7	5	4
2	9	7	1
3	4	2	8
4	5	9	7
5	1	6	5
6	2	3	6
7	3	8	9
8	6	1	2
9	8	4	3

3. (worth 3 points) Evaluate $h(9)$.

4. (worth 3 points) Evaluate $f^{-1}(6)$.

5. (worth 3 points) Assuming g is an **odd** function, evaluate $g(-2)$.

6. (worth 3 points) Assuming f is an **even** function, evaluate $f(-7)$.

Exam: Function Reflections (EXAM version 602)

7. (worth 15 points) A function, f , is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g , is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = -x^2 - 1$$

- a. Express $p(-x)$ as a polynomial in standard form.

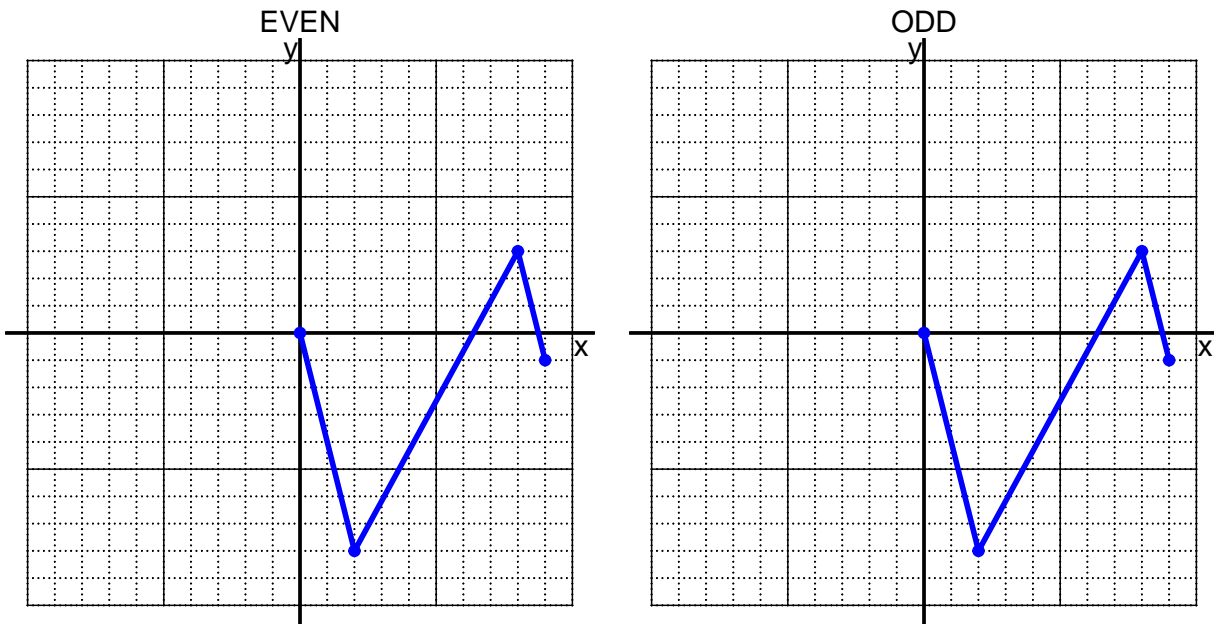
- b. Express $-p(-x)$ as a polynomial in standard form.

- c. Is polynomial p even, odd, or neither?

- d. Explain how you know the answer to part c.

Exam: Function Reflections (EXAM version 602)

8. (worth 10 points) I have drawn half of a function. Draw the other half to make it even or odd.



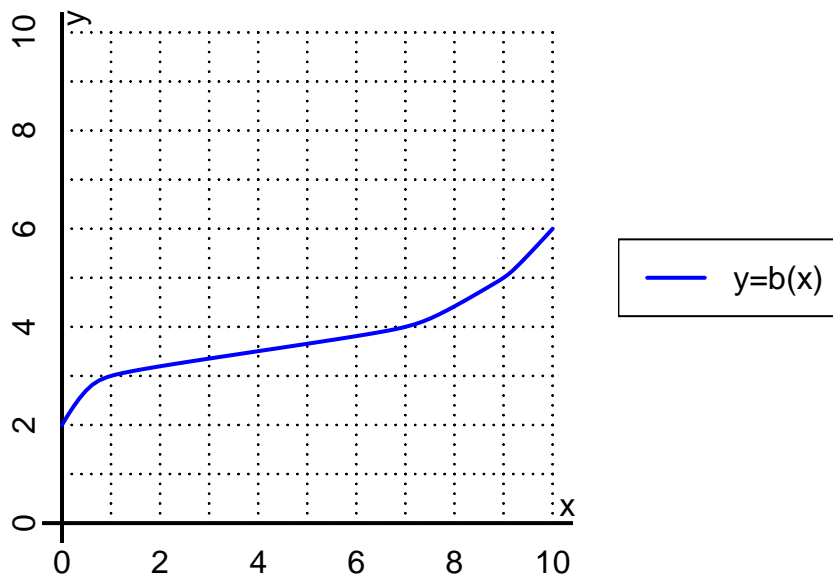
9. (worth 10 points) Let function f be defined with the equation below.

$$f(x) = 3x + 8$$

- a. Evaluate $f(2)$.
- b. Evaluate $f^{-1}(38)$.

Exam: Function Reflections (EXAM version 602)

10. (worth 6 points) The function b is represented by the curve $y = b(x)$ graphed below.



a. Evaluate $b(7)$.

b. Evaluate $b^{-1}(5)$.

Exam: Function Reflections (EXAM version 602)

11. (worth 18 points) Function f is defined by the table below.

a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	5			
-1	3			
0	0			
1	3			
2	-5			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?